

PLUG-IN CONNECTION DEVICE

Claims

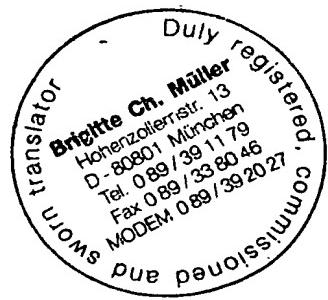
1. Plug-in connection device (1) consisting of at least one plug part (2) with a socket part (3), which can be detachably connected together and which exhibit a plug or socket insert (4, 5) accommodated in the respective part (2, 3), wherein at least one of the inserts (4, 5) is configured for the plug coding and exhibits electrical connection devices (6, 7), which cannot be rotated relative to it, and can be inserted rotationally fixed into it in a number of rotational positions relative to the assigned part (2, 3).

characterised in that

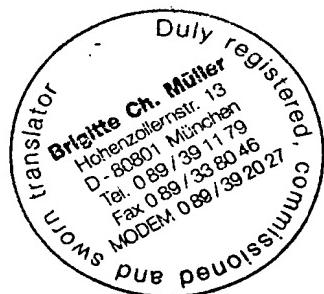
the engaging and counter engaging elements (11, 12), which can engage in various rotational positions (15), are formed at mutually assigned ends (18, 19) of the insert (4, 5) and of a positioning element (17), the said positioning element (17) being able to be inserted in the interior (13, 14) of the respective part (2, 3) in particularly a predetermined insertion position (16).

2. Plug-in connection device according to Claim 1, **characterised in that** both the plug insert (4) and also the socket insert (5) can be inserted respectively into the plug part (2) or socket part (3) in various rotational positions.
3. Plug-in connection device according to Claim 1 or 2, **characterised in that** the electrical connecting devices (6, 7) are retained by the respective insert (4, 5).
4. Plug-in connection device according to one of the previous claims, **characterised in that** the electrical connecting devices (6, 7) are arranged as connector pins (8) or connector sockets (9) in appropriate longitudinal holes (10) in the respective insert (4, 5) and particularly protrude over the insert (4, 5) on both sides in the longitudinal direction.
5. Plug-in connection device according to one of the previous claims, **characterised in that** the insert (4, 5) exhibits a number of engaging elements (11), which can be brought in engagement with corresponding counter engaging elements (12) in the interior of the associated part (2, 3) in the various rotational positions (15).
6. Plug-in connection device according to one of the previous claims, **characterised in that** the counter engaging elements (12) are arranged on a sleeve-shaped positioning element (17).

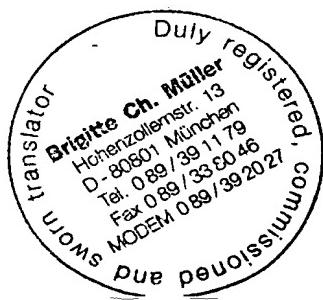
Modified Claims



7. Plug-in connection device according to one of the previous claims, **characterised in that** the positioning element (17) is pushed onto the respective insert (4, 5), in particular detachably.
6. Plug-in connection device according to one of the previous claims, **characterised in that** the engaging and counter engaging elements (11, 12) are formed as grooves (21) and protrusions (22), essentially complementary to one another and arranged in the circumferential direction (20) of the insert (4, 5) and positioning element (17).
9. Plug-in connection device according to one of the previous claims, **characterised in that** the engaging elements (11) are formed on an essentially annular circumferentially running end flange (23).
10. Plug-in connection device according to one of the previous claims, **characterised in that** the end flange (23) exhibits an annular groove (24), open in the direction of the positioning element (17), wherein the engaging elements (11) are arranged at least along one edge (25) of the annular groove (24).
11. Plug-in connection device according to one of the previous claims, **characterised in that** the engaging elements and counter engaging elements (11, 12) are respectively arranged in equal numbers and at equal distances in the circumferential direction (20).
12. Plug-in connection device according to one of the previous claims, **characterised in that** the positioning element (17) is detachably connected to the insert (4, 5), in particular in a relative position (26) with respect to one another.
13. Plug-in connection device according to one of the previous claims, **characterised in that** the positioning element (17) and the insert (4, 5) lock into one another in the relative position (26).
14. Plug-in connection device according to one of the previous claims, **characterised in that** the positioning element (17) in the plug insert (4) in an accommodating sleeve (46) of the plug part (2) is at least partially inserted in a predetermined insertion position.
15. Plug-in connection device according to one of the previous claims, **characterised in that** guides are formed between the accommodating sleeve (46) and an outer threaded sleeve (27) of the plug part (2), in particular extending in the longitudinal direction (28) of the threaded sleeve (27).



16. Plug-in connection device according to one of the previous claims, **characterised in that** a rotating sleeve (30) is inserted, particularly for rotation, in the end (29) of the threaded sleeve (27) facing away from the positioning element (17) and electrical leads (32), connected to the electrical connecting devices (6, 7) are arranged sealed in the internal hole (31) of the said rotating sleeve.
17. Plug-in connection device according to one of the previous claims, **characterised in that** a potting material (33) is introduced into the internal hole (31) for, in particular, the compression-proof sealing of the electrical leads (32).
18. Plug-in connection device according to one of the previous claims, **characterised in that** a gap, safe from flame penetration, is formed between the outer side (34) of the rotating sleeve (30) and the inner side (35) of the threaded sleeve (27) according to at least ex-d type of protection.
19. Plug-in connection device according to one of the previous claims, **characterised in that** the rotating sleeve (30) exhibits on its insertion end (37) a locating flange (38) which protrudes outwards.
20. Plug-in connection device according to one of the previous claims, **characterised in that** the rotating sleeve (30) on its inner end (39) facing away from the insertion end (37) is in contact with the end flange (23) of the plug insert (4).
21. Plug-in connection device according to one of the previous claims, **characterised in that** the end flange (23) exhibits an insertion groove (40), facing the inner end (39) of the rotating sleeve (30) and running at least partially circumferentially.
22. Plug-in connection device according to one of the previous claims, **characterised in that** the positioning element (17) is fixed in its predetermined insertion position (16) in the longitudinal direction (28) within the threaded sleeve.
23. Plug-in connection device according to one of the previous claims, **characterised in that** the positioning element (17) is secured within the threaded sleeve (27) in the predetermined insertion position via the accommodating sleeve (46) using, in particular, a retaining ring (41).



24. Plug-in connection device according to one of the previous claims, **characterised in that** a union sleeve (42) is located for rotation on the threaded sleeve (27) at one of its ends.
25. Plug-in connection device according to one of the previous claims, **characterised in that** the plug part (2) and the socket part (3) are held together detachably in their connected position by the union sleeve (42).
26. Plug-in connection device according to one of the previous claims, **characterised in that** the threaded sleeve (27) can be screwed into a plug housing.
27. Plug-in connection device according to one of the previous claims, **characterised in that** the positioning element (17) is formed in the socket part (3) as the socket insert (43).
28. Plug-in connection device according to one of the previous claims, **characterised in that** the socket insert (43) exhibits on its outer side (44), in particular groove-shaped, connecting elements (45) for attachment within a socket housing and / or for attachment of the union sleeve (42).

